

Site Type: Rangeland
MLRA: 58B – Northern Rolling High Plains

**Shallow Clayey 10-14" P.Z.
R058BY158WY**

United States Department of Agriculture Natural Resources Conservation Service

Ecological Site Description

Site Type: Rangeland

Site Name: Shallow Clayey (SwCy) 10-14" Northern Plains Precipitation Zone,

Site ID: 058BY158WY

Major Land Resource Area: 58B – Northern Rolling High Plains

Physiographic Features

This site occurs on slopes and ridge tops, but may occur on all slopes.

Landform: Hill sides, ridges & escarpments

Aspect: N/A

	<u>Minimum</u>	<u>Maximum</u>
Elevation (feet):	3800	5100
Slope (percent):	0	60
Water Table Depth (inches):	None within 60 inches	
Flooding:		
Frequency:	None	None
Duration:	None	None
Ponding:		
Depth (inches):	0	0
Frequency:	None	None
Duration:	None	None
Runoff Class:	negligible	very high

Climatic features

Annual precipitation ranges from 10-14 inches per year. Wide fluctuations may occur in yearly precipitation and result in more drought years than those with more than normal precipitation. Temperatures show a wide range between summer and winter and between daily maximums and minimums. This is predominantly due to the high elevation and dry air, which permits rapid incoming and outgoing radiation. Cold air outbreaks from Canada in winter move rapidly from northwest to southeast and account for extreme minimum temperatures. Chinook winds may occur in winter and bring rapid rises in temperature. Extreme storms may occur during the winter, but most severely affect ranch operations during late winter and spring.

Wind speed averages about 8 mph, ranging from 10 mph during the spring to 7 mph during late summer. Daytime winds are generally stronger than nighttime and occasional strong storms may bring brief periods of high winds with gusts to more than 75 mph.

Growth of native cool season plants begins about April 1 and continues to about July 1. Native warm season plants begin growth about May 15 and continue to about August 15. Green up of cool season plants may occur in September and October of most years.

The following information is from the "Clearmont 5 SW" climate station:

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Frost-free period (32 °F): 76 - 132 days; (5 yrs. out of 10, these days will occur between May 30 – September 11)
Freeze-free period 28 °F): 110 - 145 days; (5 yrs. out of 10, these days will occur between May 16 – September 21)
Mean annual precipitation: 12.4 inches
Mean annual air temperature: 43.2 °F (28.4°F Avg. Min. – 57.9°F Avg. Max.)
For detailed information visit the Natural Resources Conservation Service National Water and Climate Center at <http://www.wcc.nrcs.usda.gov/> website. Other climate station(s) representative of this precipitation zone include: "Dull Center"

Influencing Water Features

Wetland Description:	<u>System</u>	<u>Subsystem</u>	<u>Class</u>	<u>Sub-class</u>
None	None	None	None	None

Stream Type: None

Representative Soil Features

The soils of this site are shallow (less than 20" to bedrock) well-drained soils formed in alluvium or residuum. These soils have moderate to slow permeability and may occur on all slopes. The bedrock is clay shale which is virtually impenetrable to plant roots. The soil textures included in this site are silty clay, clay, and the finer portions of sandy clay loam, clay loam, or silty clay loam. Thin ineffectual layers of other soil textures are disregarded. Layers of the soil most influential to the plant community vary from 3 to 6 inches thick.

Major Soil Series correlated to this site includes: Cadoma, Hilight, Samday, Orella, and Worfka

Other Soil Series in MLRA 58B correlated to this site include:

Parent Material Kind: residuum, alluvium
Parent Material Origin: shale, unspecified
Surface Texture: clay loam, clay, silty clay loam, and silty clay
Surface Texture Modifier: none
Subsurface Texture Group: clay
Surface Fragments ≤ 3" (% Cover): typically 0 occasionally to 25
Surface Fragments > 3" (%Cover): 0
Subsurface Fragments ≤ 3" (% Volume): 5 to 15
Subsurface Fragments > 3" (% Volume): 0

	<u>Minimum</u>	<u>Maximum</u>
Drainage Class:	well	well
Permeability Class:	very slow	moderately slow
Depth (inches):	10	20
Electrical Conductivity (mmhos/cm) ≤20":	0	4
Sodium Absorption Ratio ≤20":	0	5
Soil Reaction (1:1 Water) ≤20":	6.1	8.4
Soil Reaction (0.1M CaCl2) ≤20":	NA	NA
Available Water Capacity (inches) ≤30":	1.4	4.2
Calcium Carbonate Equivalent (percent) ≤20":	0	10

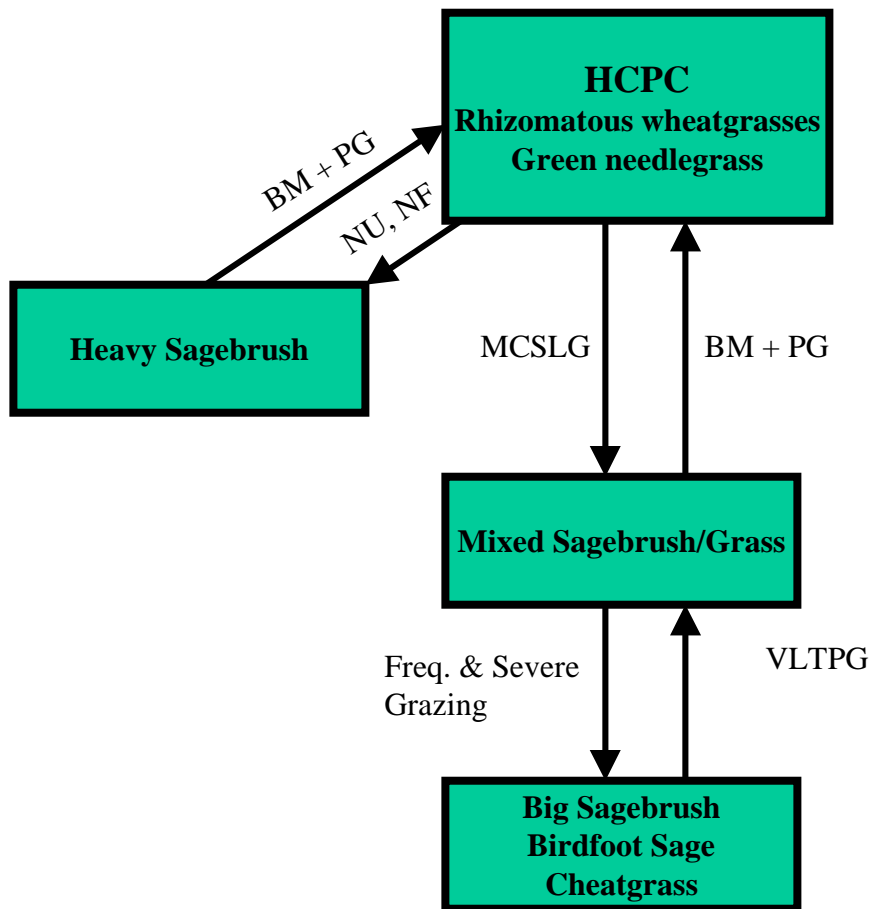
Plant Communities

Ecological Dynamics of the Site:

As this site deteriorates, species such as blue grama and big sagebrush will increase. Cool season grasses such as green needlegrass, bluebunch wheatgrass, and rhizomatous wheatgrasses will decrease in frequency and production.

The Historic Climax Plant Community (description follows the plant community diagram) has been determined by study of rangeland relic areas, or areas protected from excessive disturbance. Trends in plant communities going from heavily grazed areas to lightly grazed areas, seasonal use pastures, and historical accounts have also been used.

The following is a State and Transition Model Diagram that illustrates the common plant communities (states) that can occur on the site and the transitions between these communities. The ecological processes will be discussed in more detail in the plant community narratives following the diagram.



BM - Brush Management (fire, chemical, mechanical)

Freq. & Severe Grazing - Frequent and Severe Utilization of the Cool-season Mid-grasses during the Growing Season

GLMT - Grazing Land Mechanical Treatment

LTPG - Long-term Prescribed Grazing

MCSLG - Moderate, Continuous Season-long Grazing

NU, NF - No Use and No Fire

PG - Prescribed Grazing (proper stocking rates with adequate recovery periods during the growing season)

VLTPG - Very Long-term Prescribed Grazing (could possibly take generations)

Na - Moderate Sodium in Soil

PLANT COMMUNITY DYNAMICS
REFERENCE PLANT COMMUNITY

COMMON NAME/ GROUP NAME	SCIENTIFIC NAME	SCIENTIFIC SYMBOL	Grp	Allowable Annual Production			% Comp (MAX.)
				lbs./acre			
				below normal	normal	above normal	
				450	750	1000	
GRASSES/GRASSLIKES							
RHIZOMATOUS WHEATGRASSES:							
thickspike wheatgrass	Elymus lanceolatus	ELLAL	1	180	300	400	40%
western wheatgrass	Pascopyrum smithii	PASM	1	180	300	400	40%
OTHER GRASSES							
green needlegrass	Nassella viridula	NAV14	2	180	300	400	40%
bluebunch wheatgrass	Pseudoroegneria spicata	PSSP6	3	68	113	150	15%
Cusick's bluegrass	Poa cusickii	POCU3	4	45	75	100	10%
MISCELLANEOUS GRASSES/GRASSLIKES*							
blue grama	Bouteloua gracilis	BOGR2	5	23	38	50	5%
hairy grama	Bouteloua hirsuta	BOH12	5	23	38	50	5%
Canby bluegrass	Poa canbyi (syn. to Poa secunda)	POCA (POSE)	5	23	38	50	5%
plains reedgrass	Calamagrostis montanensis	CAMO	5	23	38	50	5%
needleleaf sedge	Carex duriuscula	CADU6	5	23	38	50	5%
buffalograss	Buchloe dactyloides	BUDA	5	23	38	50	5%
prairie junegrass	Koeleria macrantha	KOMA	5	23	38	50	5%
Sandberg bluegrass	Poa secunda	POSE	5	23	38	50	5%
plains muhly	Muhlenbergia cuspidata	MUCU3	5	23	38	50	5%
threadleaf sedge	Carex filifolia	CAFI	5	23	38	50	5%
bottlebrush squirreltail	Elymus elymoides	ELEL5	5	23	38	50	5%
FORBS							
MISCELLANEOUS FORBS*							
American vetch	Vicia americana	VIAM	6	45	75	100	10%
prairie coneflower	Ratibida columnifera	RACO3	6	23	38	50	5%
asters	Asters	ASTER	6	23	38	50	5%
biscuitroots	Lomatium spp.	LOMAT	6	23	38	50	5%
breadroot scurfpea	Pediomelum esculentum	PEES	6	23	38	50	5%
western yarrow	Achillea lanulosa	ACHIL	6	23	38	50	5%
rosy pussytoes	Antennaria rosea	ANRO2	6	23	38	50	5%
milkvetches	Astragalus	ASTRA	6	23	38	50	5%
scarlet gaura	Gaura coccinea	GACO5	6	23	38	50	5%
purple prairie clover	Dalea purpurea	DAPU5	6	23	38	50	5%
white prairie clover	Dalea candida	DACA7	6	23	38	50	5%
bluebells	Mertensia	MERTE	6	23	38	50	5%
wild onion	Allium textile	ALTE	6	23	38	50	5%
prairie thermopsis	Thermopsis rhombifolia	THRHA	6	23	38	50	5%
stemless goldenweed	Haplopappus acaulis	HAAC	6	23	38	50	5%
twogrooved milkvetch	Astragalus bisulcatus	ASBI2	6	23	38	50	5%
hawksbeard	Crepis acuminata	CRAC2	6	23	38	50	5%
sulphur flower buckwheat	Eriogonum umbellatum	ERUM	6	23	38	50	5%
TREES, SHRUBS & HALF-SHRUBS							
big sagebrush	Artemisia tridentata	ARTR2	7	23	38	50	5%
birdfoot sagebrush	Artemisia pedatifida	ARPE6	8	23	38	50	5%
winterfat	Krascheninnikovia lanata	KRLA2	9	23	38	50	5%

* Common native perennials are listed. Other native perennials may also be counted but no species in the group may be counted for more than 5%.

This list of plants and their relative proportions are based on near normal years. Fluctuations in species composition and relative production may change from year to year dependent upon precipitation or other climatic factors.

Plant Community Narratives

Following are the narratives for each of the described plant communities. These plant communities may not represent every possibility, but they probably are the most prevalent and repeatable plant communities. The plant composition tables shown above have been developed from the best available knowledge at the time of this revision. As more data is collected, some of these plant communities may be revised or removed, and new ones may be added. None of these plant communities should necessarily be thought of as “Desired Plant Communities”. According to the USDA NRCS National Range and Pasture Handbook, Desired Plant Communities (DPC’s) will be determined by the decision-makers and will meet minimum quality criteria established by the NRCS. The main purpose for including any description of a plant community here is to capture the current knowledge and experience at the time of this revision.

Rhizomatous Wheatgrasses, Green Needlegrass Community

The interpretive plant community for this site is the Historic Climax Plant Community. This state evolved with grazing by large herbivores and is well suited for grazing by domestic livestock. Potential vegetation is about 80% grasses or grass-like plants, 10% forbs, and 10% woody plants. The state is dominated by cool season midgrasses. The major grasses include rhizomatous wheatgrasses, green needlegrass, and bluebunch wheatgrass. Other grasses occurring on the state include Cusick and Sandberg bluegrass, needleleaf sedge, blue grama, and plains reedgrass. Big sagebrush and winterfat are a conspicuous element of this state, occurring in a mosaic pattern, and makes up 5 to 10% of the annual production. Big sagebrush may become dominant on some areas with absence of fire. Natural fire occurred frequently in this community and prevented sagebrush from being the dominant landscape. Wildfires are actively controlled in recent times so chemical control using herbicides has replaced the historic role of fire on this state. Recently controlled burning has regained some popularity.

The total annual production (air-dry weight) of this state is about 750 pounds per acre, but it can range from about 450 lbs./acre in unfavorable years to about 1000 lbs./acre in above average years.

The following is the growth curve of this plant community expected during a normal year:

Growth curve number:

Growth curve name:

Growth curve description:

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	0	10	30	35	10	5	5	5	0	0

(Monthly percentages of total annual growth)

The state is extremely stable and well adapted to the Northern Great Plains climatic conditions. The diversity in plant species allows for high drought resistance. This is a sustainable plant community (site/soil stability, watershed function, and biologic integrity)

Transitions or pathways leading to other plant communities are as follows:

- Protection from grazing and fire will convert this plant community to the *Heavy Sagebrush Vegetation State*.
- Moderate, continuous season-long grazing will convert the plant community to the *Mixed Sagebrush/Grass Vegetation State*.
- Frequent & Severe season-long grazing will convert the plant community to the *Big sagebrush/Birdfoot sage/Cheatgrass Vegetation State*.

Heavy Sagebrush Plant Community

This plant community is the result of protection from grazing and fire. Big Sagebrush dominates this plant community with canopy cover often exceeding 50%. The understory of grass includes rhizomatous wheatgrasses, green needlegrass, bluebunch wheatgrass, and prairie junegrass. With complete protection from grazing and fire, the state will become dominated by big sagebrush. The sagebrush canopy protects the cool season grasses, but this protection makes them unavailable for grazing. Big sagebrush is long-lived and will persist for a long period.

This plant community can provide valuable winter feed for both livestock (especially sheep) and wildlife (such as mule deer and antelope).

The total annual production (air-dry weight) of this state is about 675 pounds per acre, but it can range from about 450 lbs./acre in unfavorable years to about 900 lbs./acre in above average years.

The following is the growth curve of this plant community expected during a normal year:

Growth curve number:

Growth curve name:

Growth curve description:

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	0	10	30	35	10	5	5	5	0	0

(Monthly percentages of total annual growth)

The soil is protected from erosion. The watershed is functioning. The biotic integrity is maintained except that grass production has decreased.

Transitional pathways leading to other plant communities are as follows:

- Brush control followed by deferment for 1 to 2 years and prescribed grazing management thereafter will return this state to near *Historic Climax Plant Community condition*. Care should be taken when planning brush control to exclude critical winter ranges.

Mixed Sagebrush/Grass Plant Community

Historically, this plant community evolved under grazing by bison and a low fire frequency. Currently, it is found under moderate, season-long grazing by livestock in the absence of fire or brush control. Big sagebrush is a significant component of this plant community. Cool-season grasses make up the majority of the understory with the balance made up of short warm-season grasses, annual cool-season grass, and miscellaneous forbs.

Dominant grasses include rhizomatous wheatgrasses, and green needlegrass. Grasses of secondary importance include blue grama, prairie junegrass, and Sandberg bluegrass. Forbs, commonly found in this plant community, include Louisiana sagewort (cudweed), plains wallflower, hairy goldaster, slimflower scurfspea, and scarlet globemallow. Sagebrush canopy ranges from 20% to 30%. Fringed sagewort is commonly found. Plains pricklypear and winterfat can also occur.

When compared to the Historical Climax Plant Community, big sagebrush and blue grama have increased. Green needlegrass and bluebunch wheatgrass have decreased, often occurring only where protected from grazing by the big sagebrush canopy. Production of cool-season grasses has also been reduced. Cheatgrass (downy brome) has invaded the state. The overstory of big sagebrush and understory of grass and forbs provide a diverse plant community that will support domestic livestock and wildlife such as mule deer and antelope.

The total annual production (air-dry weight) of this state is about 675 pounds per acre, but it can range from about 450 lbs./acre in unfavorable years to about 900 lbs./acre in above average years.

The following is the growth curve expected during a normal year:

Growth curve number:

Growth curve name:

Growth curve description:

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	0	10	30	35	10	5	5	5	0	0

(Monthly percentages of total annual growth)

The state is stable and protected from excessive erosion. The biotic integrity of this plant community is usually intact. However, it can be at risk depending on how far a shift has occurred in plant composition toward blue grama, sagebrush, and/or cheatgrass. The watershed is usually functioning. However, it can become at risk when canopy cover of big sagebrush, blue grama sod, and/or bare ground increases.

Transitional pathways leading to other plant communities are as follows:

- Brush control followed by prescribed grazing, will result in a plant community very similar to the *Historic Climax Plant Community*.
- Frequent and severe grazing, will result in a *Big sagebrush/ Birdfoot sage/Cheatgrass Vegetation State*.

Big sagebrush/Birdfoot sage/Cheatgrass plant community

This plant community is the result of frequent and severe grazing. Big sagebrush, birdfoot sage, and cheatgrass dominate it. When compared to the historic climax plant community there are hardly any perennial grasses left and the dominant shrubs are big sagebrush and birdfoot sage.

The total annual production (air-dry weight) of this state is about 450 pounds per acre, but it can range from about 300 lbs./acre in unfavorable years to about 600 lbs./acre in above average years.

The following is the growth curve of this plant community expected during a normal year:

Growth curve number:

Growth curve name:

Growth curve description:

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	0	15	30	30	10	5	5	5	0	0

(Monthly percentages of total annual growth)

Much bare ground is present. This community has lost some of its value for grazing wildlife and livestock. It is susceptible to erosion and increased runoff due to the bare ground.

Transitional pathways leading to other plant communities are as follows:

- Prescribed grazing management is the only improvement practice that can be used on this state due to steep slopes. Long-term prescribed grazing may return this state to the *Mixed sagebrush/Grass Vegetation State*.

Ecological Site Interpretations

Animal Community – Wildlife Interpretations

Historic Climax Plant Community: The predominance of grasses in this plant community favors grazers and mixed-feeders, such as bison, elk, and antelope. Suitable thermal and escape cover for deer may be limited due to the low quantities of woody plants. However, topographical variations could provide some escape cover. When found adjacent to sagebrush dominated states, this plant community may provide brood rearing/foraging areas for sage grouse, as well as lek sites. Other birds that would frequent this plant community include western meadowlarks, horned larks, and golden eagles. Many grassland obligate small mammals would occur here.

Heavy Sagebrush: This plant community can provide important winter foraging for elk, mule deer and antelope, as sagebrush can approach 15% protein and 40-60% digestibility during that time. This community provides excellent escape and thermal cover for large ungulates, as well as nesting and brood rearing habitat for sage grouse.

Mixed Sagebrush/Grass: The combination of an overstory of sagebrush and an understory of grasses and forbs provide a very diverse plant community for wildlife. The crowns of sagebrush tend to break up hard crusted snow on winter ranges, so mule deer and antelope may use this state for foraging and cover year-round, as would cottontail and jack rabbits. It provides important winter, nesting, brood-rearing, and foraging habitat for sage grouse. Brewer's sparrows' nest in big sagebrush plants, and hosts of other nesting birds utilize stands in the 20-30% cover range.

Big sagebrush/Birdfoot sage/Cheatgrass: This plant community can provide important winter foraging for elk, mule deer and antelope, as sagebrush can approach 15% protein and 40-60% digestibility during that time. Grazing during spring to fall may be restricted due to low grass production. This community provides nesting and brood rearing habitat for sage grouse.

Animal Preferences (Quarterly - 1,2,3,4) for commonly occurring plants in MLRA 58B, 10-14 inch Northern Plains

COMMON NAME/ GROUP NAME	SCIENTIFIC NAME	SCIENTIFIC SYMBOL	Cattle	Sheep	Horses	Mule Deer	Antelope
GRASSES/GRASSLIKES							
alkali bluegrass	<i>Poa secunda</i> ssp. <i>juncifolia</i>	POSEJ	DDDD	PPPP	DDDD	PPPP	PPPP
alkali cordgrass	<i>Spartina gracilis</i>	SPGR	DDDD	UUUU	DDDD	UUUU	UUUU
alkali sacaton	<i>Sporobolus airoides</i>	SPA1	PPPP	DDDD	PPPP	DDDD	DDDD
Baltic rush	<i>Juncus balticus</i>	JUBA	DDDD	UUUU	DDDD	UUUU	UUUU
basin wildrye	<i>Leymus cinereus</i>	LEC14	PPPP	PPPP	PPPP	DDDD	DDDD
bearded wheatgrass	<i>Elymus caninus</i>	ELCA	PPPP	DDDD	PPPP	DDDD	DDDD
big bluestem	<i>Andropogon gerardii</i>	ANGE	PPPP	PPPP	PPPP	DDDD	DDDD
blue grama	<i>Bouteloua gracilis</i>	BOGR2	DDDD	DDDD	DDDD	DDDD	DDDD
bluebunch wheatgrass	<i>Pseudoroegneria spicata</i>	PSSP6	PPPP	PPPP	PPPP	DDDD	DDDD
bluejoint reedgrass	<i>Calamagrostis canadensis</i>	CACA4	PPPP	DDDD	PPPP	UUUU	UUUU
bottlebrush squirreltail	<i>Elymus elymoides</i>	ELELE	DDDD	DDDD	DDDD	UUUU	UUUU
buffalograss	<i>Buchloe dactyloides</i>	BUDA	DDDD	DDDD	DDDD	DDDD	DDDD
Canada wildrye	<i>Elymus canadensis</i>	ELCA4	PPPP	PPPP	PPPP	DDDD	DDDD
Canby bluegrass	<i>Poa canbyi</i> (syn. to <i>Poa secunda</i>)	POCA (POSE)	PPPP	PPPP	PPPP	PPPP	PPPP
Cusick's bluegrass	<i>Poa cusickii</i>	POCU3	PPPP	PPPP	PPPP	PPPP	PPPP
Fendler threeawn	<i>Aristida purpurea</i>	ARPUL	UUUU	UUUU	UUUU	UUUU	UUUU
green needlegrass	<i>Nassella viridula</i>	NAV14	PPPP	PPPP	PPPP	PPPP	PPPP
hairy grama	<i>Bouteloua hirsuta</i>	BOH12	DDDD	DDDD	DDDD	DDDD	DDDD
Indian ricegrass	<i>Achnatherum hymenoides</i>	ACHY	PPPP	PPPP	PPPP	PPPP	PPPP
inland saltgrass	<i>Distichlis spicata</i>	DISP	UUUU	UUUU	UUUU	UUUU	UUUU
inland sedge	<i>Carex interior</i>	CAIN11	DDDD	DDDD	DDDD	UUUU	UUUU
little bluestem	<i>Schizachyrium scoparium</i>	SCSC	PPPP	PPPP	PPPP	DDDD	DDDD
mat muhly	<i>Muhlenbergia richardsonis</i>	MURI	UUUU	UUUU	UUUU	UUUU	UUUU
Nebraska sedge	<i>Carex nebraskensis</i>	CANE2	PPPP	PPPP	PPPP	DDDD	DDDD
needleandthread	<i>Hesperostipa comata</i>	HECO26	PPPP	PPPP	PPPP	PPPP	PPPP
needleleaf sedge	<i>Carex duriuscula</i>	CADU6	UUUU	UUUU	UUUU	UUUU	UUUU
northern reedgrass	<i>Calamagrostis stricta</i>	CAST13	PPPP	DDDD	PPPP	UUUU	UUUU
Nuttall's alkaligrass	<i>Puccinellia nuttalliana</i>	PUNU2	PPPP	PPPP	PPPP	PPPP	PPPP
plains muhly	<i>Muhlenbergia cuspidata</i>	MUCU3	DDDD	DDDD	DDDD	UUUU	UUUU
plains reedgrass	<i>Calamagrostis montanensis</i>	CAMO	DDDD	DDDD	DDDD	DDDD	DDDD
prairie cordgrass	<i>Spartina pectinata</i>	SPPE	PPPP	DDDD	PPPP	UUUU	UUUU
prairie junegrass	<i>Koeleria macrantha</i>	KOMA	DDDD	DDDD	DDDD	DDDD	DDDD
prairie sandreed	<i>Calamovilfa longifolia</i>	CALO	PPPP	DDDD	PPPP	UUUU	UUUU
sand bluestem	<i>Andropogon halli</i>	ANHA	PPPP	DDDD	PPPP	UUUU	UUUU
sand dropseed	<i>Sporobolus cryptandrus</i>	SPCR	DDDD	DDDD	DDDD	UUUU	UUUU
Sandberg bluegrass	<i>Poa secunda</i>	POSE	DDDD	DDDD	DDDD	DDDD	DDDD
sideoats grama	<i>Bouteloua curtipendula</i>	BOCU	PPPP	PPPP	PPPP	DDDD	UUUU
slender wheatgrass	<i>Elymus trachycaulus</i>	ELTR7	PPPP	DDDD	PPPP	DDDD	DDDD
spike sedge	<i>Carex nardina</i>	CANA2	DDDD	DDDD	DDDD	UUUU	UUUU
thickspike wheatgrass	<i>Elymus lanceolatus</i>	ELLAL	DDDD	DDDD	DDDD	DDDD	DDDD
threadleaf sedge	<i>Carex filifolia</i>	CAFI	DDDD	DDDD	DDDD	DDDD	PPPP
tufted hairgrass	<i>Deschampsia caespitosa</i>	DECA18	PPPP	PPPP	PPPP	DDDD	DDDD
western wheatgrass	<i>Pascopyrum smithii</i>	PASM	DDDD	DDDD	DDDD	DDDD	DDDD
FORBS							
American licorice	<i>Glycyrrhiza lepidota</i>	GLLE3	UUUU	UUUU	UUUU	UUUU	UUUU
American vetch	<i>Vicia americana</i>	VIAM	PPPP	PPPP	PPPP	PPPP	PPPP
arrowgrass	<i>Triglochin</i> spp.	TRIGL	T	T	T	T	T
asters	Asters	ASTER	UUUU	UUUU	UUUU	UUUU	UUUU
biscuitroots	<i>Lomatium</i> spp.	LOMAT	DDDD	DDDD	UUUU	DDDD	DDDD
bluebells	<i>Mertensia</i>	MERTE	DDDD	PPPP	DDDD	DDDD	DDDD
blue-eyed grass	<i>Sisyrinchium</i> spp.	SISYR	DDDD	PPPP	DDDD	DDDD	DDDD
breadroot scurfpea	<i>Pediomelum esculentum</i>	PEES	DDDD	DDDD	DDDD	DDDD	DDDD
cattail, broad-leaf	<i>Typha latifolia</i>	TYLA	DDDD	UUUU	DDDD	UUUU	UUUU
cattail, narrow-leaf	<i>Typha angustifolia</i>	TYAN	DDDD	UUUU	DDDD	UUUU	UUUU
fringed sagewort	<i>Artemisia frigida</i>	ARFR4	UUUU	UUUU	UUUU	UUUU	UUUU
green sagewort	<i>Artemisia dracunculus</i>	ARDR4	UUUU	UUUU	UUUU	UUUU	UUUU
hawksbeard	<i>Crepis acuminata</i>	CRAC2	UUUU	PPPP	UUUU	DDDD	DDDD
horsetails	<i>Equisetum</i> spp.	EQUIS	UUUU	UUUU	UUUU	UUUU	UUUU
iris	<i>Iris</i> spp.	IRIS	UUUU	UUUU	UUUU	UUUU	UUUU
milkvetches	<i>Astragalus</i>	ASTRA	DDDD	DDDD	DDDD	DDDD	DDDD
poison hemlock	<i>Conium maculatum</i>	COMA2	T	T	T	T	T
prairie coneflower	<i>Ratibida columnifera</i>	RACO3	DDDD	PPPP	DDDD	PPPP	PPPP
prairie thermopsis	<i>Thermopsis rhombifolia</i>	THRHA	UUUU	UUUU	UUUU	UUUU	UUUU
purple prairie clover	<i>Dalea purpurea</i>	DAPU5	PPPP	PPPP	PPPP	PPPP	PPPP
Pursh seepweed	<i>Suaeda calceoliformis</i>	SUCA2	UUUU	UUUU	UUUU	UUUU	UUUU
rosy pussytoes	<i>Antennaria rosea</i>	ANRO2	UUUU	UUUU	UUUU	UUUU	UUUU
scarlet gaura	<i>Gaura coccinea</i>	GACO5	UUUU	UUUU	UUUU	UUUU	UUUU
stemless goldenweed	<i>Haplopappus acaulis</i>	HAAC	UUUU	UUUU	UUUU	UUUU	UUUU
sulphur flower buckwheat	<i>Eriogonum umbellatum</i>	ERUM	UUUU	UUUU	UUUU	UUUU	UUUU
twogrooved milkvetch	<i>Astragalus bisulcatus</i>	ASB12	T	T	T	T	T
water hemlocks	<i>Cicuta</i> spp.	CICUT	T	T	T	T	T
western yarrow	<i>Achillea lanulosa</i>	ACHIL	UUUU	UUUU	UUUU	UUUU	UUUU
white prairie clover	<i>Dalea candida</i>	DACA7	PPPP	PPPP	PPPP	PPPP	PPPP
wild onion	<i>Allium textile</i>	ALTE	DDDD	DDDD	DDDD	DDDD	DDDD
TREES, SHRUBS & HALF-SHRUBS							
big sagebrush	<i>Artemisia tridentata</i>	ARTR2	UUUU	DDDD	UUUU	DDDD	DDDD
birdfoot sagebrush	<i>Artemisia pedatifida</i>	ARPE6	UUUU	UUUU	UUUU	UUUU	UUUU
black greasewood	<i>Sarcobatus vermiculatus</i>	SAVE4	DDDD	DDDD	UUUU	DDDD	DDDD
fourwing saltbush	<i>Atriplex canescens</i>	ATCA2	PPPP	PPPP	PPPP	PPPP	PPPP
Gardners saltbush	<i>Atriplex gardneri</i>	ATGA	PPPP	PPPP	DDDD	PPPP	PPPP
green rabbitbrush	<i>Chrysothamnus viscidiflorus</i>	CHV18	DDDD	DDDD	DDDD	DDDD	DDDD
junipers	<i>Juniperus scopulorum</i>	JUSC2	UUUU	UUUU	UUUU	DDDD	UUUU
plains cottonwood (sprouts)	<i>Populus deltoides</i>	PODEM	DDDD	DDDD	DDDD	DDDD	DDDD
ponderosa pine (abortion in cattle)	<i>Pinus ponderosa</i>	PIPO	UUUU	UUUU	UUUU	UUUU	UUUU
rubber rabbitbrush	<i>Ericameria nauseosa</i>	ERNA10	UUUU	DDDD	UUUU	DDDD	DDDD
silver sagebrush	<i>Artemisia cana</i>	ARCA5	DDDD	DDDD	DDDD	PPPP	PPPP
silverberry	<i>Eleagnus commutata</i>	ELCO	UUUU	UUUU	UUUU	DDDD	UUUU
skunkbush sumac	<i>Rhus trilobata</i>	RHTR	DDDD	DDDD	DDDD	DDDD	DDDD
western snowberry	<i>Symphoricarpos occidentalis</i>	SYOC	UUUU	UUUU	UUUU	DDDD	UUUU
wildrose	<i>Rosa woodsii</i> var. <i>woodsii</i>	ROWOW	DDDD	DDDD	UUUU	DDDD	DDDD
willows	<i>Salix</i> L.	SALIX	PPPP	PPPP	DDDD	PPPP	UUUU
winterfat	<i>Krascheninnikovia lanata</i>	KRLA2	PPPP	PPPP	PPPP	PPPP	PPPP
yucca	<i>Yucca glauca</i>	YUGL	DDDD	DDDD	DDDD	DDDD	DDDD

N = not used; U = undesirable; D = desirable; P = preferred; T = toxic

Animal Community – Grazing Interpretations

The following table lists suggested stocking rates for cattle under continuous season-long grazing under normal growing conditions. These are conservative estimates that should be used only as guidelines in the initial stages of the conservation planning process. Often, the current plant composition does not entirely match any particular plant community (as described in this ecological site description). Because of this, a field visit is recommended, in all cases, to document plant composition and production. More precise carrying capacity estimates should eventually be calculated using this information along with animal preference data, particularly when grazers other than cattle are involved. Under more intensive grazing management, improved harvest efficiencies can result in an increased carrying capacity. If distribution problems occur, stocking rates must be reduced to maintain plant health and vigor.

Plant Community	Production (lb./ac)	Carrying Capacity* (AUM/ac)
Historic Climax Plant Community	450-1000	.2
Heavy Sagebrush	450-900	.17
Mixed Sagebrush/Grass	450-900	.17
Big sagebrush/Birdfoot sage/Cheatgrass	300-600	.05

* - Continuous, season-long grazing by cattle under average growing conditions.

Grazing by domestic livestock is one of the major income-producing industries in the area. Rangeland in this area may provide yearlong forage for cattle, sheep, or horses. During the dormant period, the forage for livestock use needs to be supplemented with protein because the quality does not meet minimum livestock requirements.

Hydrology Functions

Water is the principal factor limiting forage production on this site. This site is dominated by soils in hydrologic group C and D. Infiltration ranges from very slow to moderately slow. Runoff potential for this site varies from moderate to high depending on soil hydrologic group and ground cover. In many cases, areas with greater than 75% ground cover have the greatest potential for high infiltration and lower runoff. An example of an exception would be where short-grasses form a strong sod and dominate the site. Areas where ground cover is less than 50% have the greatest potential to have reduced infiltration and higher runoff (refer to Part 630, NRCS National Engineering Handbook for detailed hydrology information).

Rills and gullies should not typically be present. Water flow patterns should be barely distinguishable if at all present. Pedestals are only slightly present in association with bunchgrasses such as bluebunch wheatgrass. Litter typically falls in place, and signs of movement are not common. Chemical and physical crusts are rare to non-existent. Cryptogamic crusts are present, but only cover 1-2% of the soil surface.

Recreational Uses

This site provides hunting opportunities for upland game species. The wide variety of plants which bloom from spring until fall have an esthetic value that appeals to visitors.

Site Type: Rangeland
MLRA: 58B – Northern Rolling High Plains

**Shallow Clayey 10-14" P.Z.
R058BY158WY**

Wood Products

No appreciable wood products are present on the site.

Other Products

None noted.

Supporting Information

Associated Sites

Clayey	058BY104WY
Shallow Loamy	058BY162WY

Similar Sites

() – Shallow Clayey 15-17" Northern Plains P.Z. [Higher production]	058BY258WY
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Inventory Data References (narrative)

Information presented here has been derived from NRCS clipping data and other inventory data. Field observations from range trained personnel was also used. Those involved in developing this site include: Glen Mitchell, Range Management Specialist, NRCS; Chuck Ring, Range Management Specialist, NRCS; and Everet Bainter, Range Management Specialist. Other sources used as references include: USDA NRCS Water and Climate Center, USDA NRCS National Range and Pasture Handbook, and USDA NRCS Soil Surveys from various counties.

Inventory Data References

<u>Data Source</u>	<u>Number of Records</u>	<u>Sample Period</u>	<u>State</u>	<u>County</u>
SCS-RANGE-417	12	1971-1994	WY	Campbell & others
Ocular estimates	5	1990-1999	WY	Campbell & others

State Correlation

This site has been correlated with Montana in MLRA 58B.

Type Locality

Field Offices

Buffalo, Douglas, Gillette, Lusk, Newcastle, Sheridan

Relationship to Other Established Classifications

Other References

Site Type: Rangeland
MLRA: 58B – Northern Rolling High Plains

**Shallow Clayey 10-14” P.Z.
R058BY158WY**

Site Description Approval

State Range Management Specialist

Date

State Range Management Specialist

Date